

JRC TECHNICAL REPORT

COVID-19 and online adult learning

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2021



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EU Science Hub
<https://ec.europa.eu/jrc>

JRC126993

EUR 30934 EN

PDF ISBN 978-92-76-45989-7 ISSN 1831-9424 doi:10.2760/886741

Luxembourg: Publications Office of the European Union, 2021



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How to cite this report: Di Pietro, G., Karpiński, Z., *COVID-19 and online adult learning*, EUR 30934 EN, Publications Office of the European Union, Luxembourg, 2021, ISBN 978-92-76-45989-7, doi:10.2760/886741, JRC126993.

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Acknowledgements

The authors would like to thank Federico Biagi, Rosanna Di Gioia, Marco Montanari, and Sylke Schnepf and for their helpful comments and suggestions.

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Abstract

While adult learning is a vital component of the European Commission's lifelong strategy, its incidence decreased in 2020 due to the economic impact of Covid-19. A main reason for such decline lies in the disruption of on-the-job training caused by the pandemic. This study, however, shows that increased participation in online learning activities among adults could at least partially compensate for this situation. Using data from the Eurostat's Community survey on ICT usage in households and by individuals, we find that in most EU countries Covid-19 is associated with a higher proportion of adults taking online courses. Our results indicate also that the increase has been especially pronounced among women, individuals aged 55 to 64, and less educated adults. Enhanced availability and adoption of electronic devices, increased offer of free or low-cost online courses and the labour market effects of Covid-19 are all likely to have contributed to the rise of online adult learning.

1 Introduction

Adult learning is one of the EU's priorities. It helps to maintain and upgrade individuals' skills, allowing them to acquire competencies that are needed to live an independent and productive life. EU people are strongly encouraged to continuously acquire new knowledge¹ even long after the end of formal education. According to the European Skills Agenda (European Commission, 2020b), participation of adults aged 25-64 in learning over a period of twelve months should reach 50 percent by 2025. There is evidence showing that adult learning improves wages. For instance, Fialho et al. (2019) find that participation in non-formal learning is associated with 11 percent higher wages whereas the earnings returns to learning that takes place informally at work are estimated to be about 3.5 percent. Engaging or continuing to engage with learning in adulthood is also found to be beneficial for mental health and well-being (Field, 2009).

Concerns have been expressed about the possible negative impact of Covid-19 on participation in adult learning (Di Pietro et al., 2021). Individuals tend to face tighter financial constraints because of the economic crisis induced by the pandemic and hence may be unable to afford to pay for learning costs. At the same time, companies may offer their employees fewer training opportunities. As observed by Leuven (2005), financial restrictions may make firms delay any investment in equipment and new technologies, leading to cutbacks in training. Additionally, while some on-the-job learning activities could be transferred online, this is not possible for others, e.g., those relying on physical proximity with co-workers. A recent OECD report (OECD, 2021) finds that, under certain assumptions⁽²⁾, the pandemic reduced workers' participation (measured as number of hours) in non-formal learning by an average of 18 percent while the corresponding decrease in informal learning is about 25 percent. These results are also consistent with recent Eurostat statistics, showing that adult participation (25 – 64 years) in formal and non-formal education and training decreased from 10.8 percent in 2019 to 9.2 percent in 2020 in EU-27.

This report looks at the impact of Covid-19 on online adult learning using EU cross-country data. While, as shown above, the pandemic had a negative impact on overall participation in adult learning, there are reasons to believe that the online component has increased. The year 2020 has witnessed enhanced availability and adoption of electronic tools that have significantly improved online learning experiences (Lockee, 2021). Synchronous online conference systems (e.g., Zoom, Google Meet) have enabled experts from all over the world to join online classes and workshops, and have also allowed presentations to be recorded so that they can be watched at a time that suits individual learners. Furthermore, as noted by Kaiser and McKenna (2021), most adult educators were able to respond quickly and effectively to the education challenges presented by the Covid-19 pandemic. Adult educators have long embraced remote education as this is a flexible and convenient way to study that addresses common barriers faced by adults who want or need to engage in learning. The last few years have also seen a considerable increase in the availability of online courses (e.g., Massive Open Online Courses – MOOC). Not only are most of them offered for free or at a low cost, but they are increasingly valuable for those who take them. A growing number of them provide microcredentials and nanodegrees that are valued by employers (Impey, 2020). Castaño-Muñoz and Rodrigues (2021) find evidence that participation in MOOC ecosystem is linked to higher employment retaining. Other online courses offer modular learning units that can be combined for a qualification (e.g., master's degree).

In a recent article, Grenier (2021) argues that Covid-19 has given rise to a new form of learning that she named "cabin fever learning". This arises out of frustration and boredom in response to social isolation. The rationale behind it is that the lockdown has encouraged individuals to find ways to keep themselves intellectually occupied as this helps them preserve their mental health and emotional well-being. Cabin fever learning is in between self-directed, intentional learning and spontaneous, incidental and experiential learning.

There is some evidence suggesting that the pandemic is associated with an increase in online adult learning. Due to Covid-19, schools, colleges and universities have moved classes from in-person to virtual. Adults enrolled in formal education (e.g., early school leavers returning to education to get school-leaving qualifications, adults studying towards a degree after a spell in the labour market, those reskilling by attending college courses) could have only continued their learning online. The move to online delivery has occurred not only across educational institutions offering general academic programmes but also, to some extent, across those offering vocational programmes. Those vocational schools or colleges with mixed programmes – including both off-the-job and on-

⁽¹⁾ For example, digital competence has been identified as one of the key competences of lifelong learning (Council of the European Union, 2018). Several actions (e.g., Digital Action Plan (European Commission, 2020a)) and initiatives (e.g., Digital Competence Framework (European Commission, 2018)) have been adopted by the European Commission in an attempt to improve citizens' digital skills.

⁽²⁾ These assumptions are related to the intensity of sectoral shutdowns and the subsequent proportion of workers that have been forced to stay at home. Additionally, the estimates are also adjusted to account for the partial transfer of learning activities online, according to the country- and sectoral feasibility of working remotely.

the-job training – have in fact shortened or postponed the work-based component and started delivering theoretical training online. For example, the Australian Skills Quality Authority has encouraged training providers to bring forward the off-the-job component and delay the work placement component (<https://www.asqa.gov.au/covid-19>). In England, the theoretical online part was expanded and where possible replaced the work-based part (OECD, 2020). Additionally, many public employment services have offered online training to job seekers. For instance, in France more than 150 new training courses have become available on the “Emploi Store”. Finally, a large number of countries around the world have provided online training to teachers (UNESCO, 2020). The aim was to upgrade teachers’ skills and help them in the preparation and delivery of online classes.

On the other hand, there are concerns about the provision of online learning opportunities during Covid-19 among adults who do not possess adequate digital skills and/or do not have access to a computer or an internet connection. The risk of digital exclusion is typically found to be higher for adults with lower levels of education, lower paying jobs or unemployed (Boeren et al., 2020).

The remainder of the report is set out as follows. Section 2 describes the data source used and the criteria employed for the selection of the countries considered in this study. Section 3 presents and discusses the results. Section 4 summarises the main findings and concludes.

2 Data

We use data from the Eurostat’s Community survey on ICT usage in households and by individuals. This survey, which has not been conducted regularly on annual basis, is carried out in all EU 27 Member States. We employ data from the 2020 wave as well as from the 2017 and 2019 waves ⁽³⁾. The latter are important to understand the extent of the change in participation in online adult learning in 2020 compared to previous recent years. The variable of interest derives from a question where respondents have been asked: “Have you conducted any of the following learning activities over the internet for educational, professional or private purposes?” We focus our attention on one of these learning activities: “doing an online course (of any subject)” ⁽⁴⁾. Given the focus on adult learning, only individuals aged between 25 and 64 are selected. Although one would have liked to include all 27 EU countries in the analysis, only 22 of them can be considered here. France has been excluded because information from the 2020 wave is unavailable. Latvia and Belgium have been removed because some of the collected data refer to the pre-Covid-19 period. In these two countries, in fact, the survey period started in January 2020 and the reference period ⁽⁵⁾ was three months before the interview. Finally, Ireland and Italy have also been omitted as there seems to be no available information about the survey and reference periods adopted during the 2020 wave ⁽⁶⁾. It is important to note that, although in all the EU Member States selected in this study the reference period in the 2020 wave overlaps with the Covid-19 outbreak, there are important cross-country differences. For instance, in Latvia, Slovakia, Slovenia, Estonia, Hungary and Greece the reference period was the first quarter of 2020 (i.e., January, February and March 2020). This means that for these countries the reference period captures only the beginning of the first wave of the Covid-19 pandemic (on 11th March 2020, the Director General of the World Health Organisation — WHO — declared Covid-19 a “global pandemic”). On the other hand, for other countries most of the reference period falls within the first Covid-19 wave. For example, in Bulgaria the reference period was March-May 2020 ⁽⁷⁾. Annex 1 reports the survey and reference periods for the countries considered in this study.

⁽³⁾ The survey was not conducted in 2018.

⁽⁴⁾ This question would seem to cover two typologies of lifelong activities: formal and non-formal learning. Informal learning would appear to be excluded.

⁽⁵⁾ The reference period is the time frame for which survey respondents are asked to report activities or experiences of interest. It is therefore important to keep in mind that the rates of participation in online learning presented in this report **are not** annual participation rates, as they refer to participation in online learning over the 3-months reference period. However, unless there are systematic differences between social groups or categories in terms of when, during a year, they enrol in an online course, the quarterly participation rates can be assumed to approximate the annual rates reasonably well.

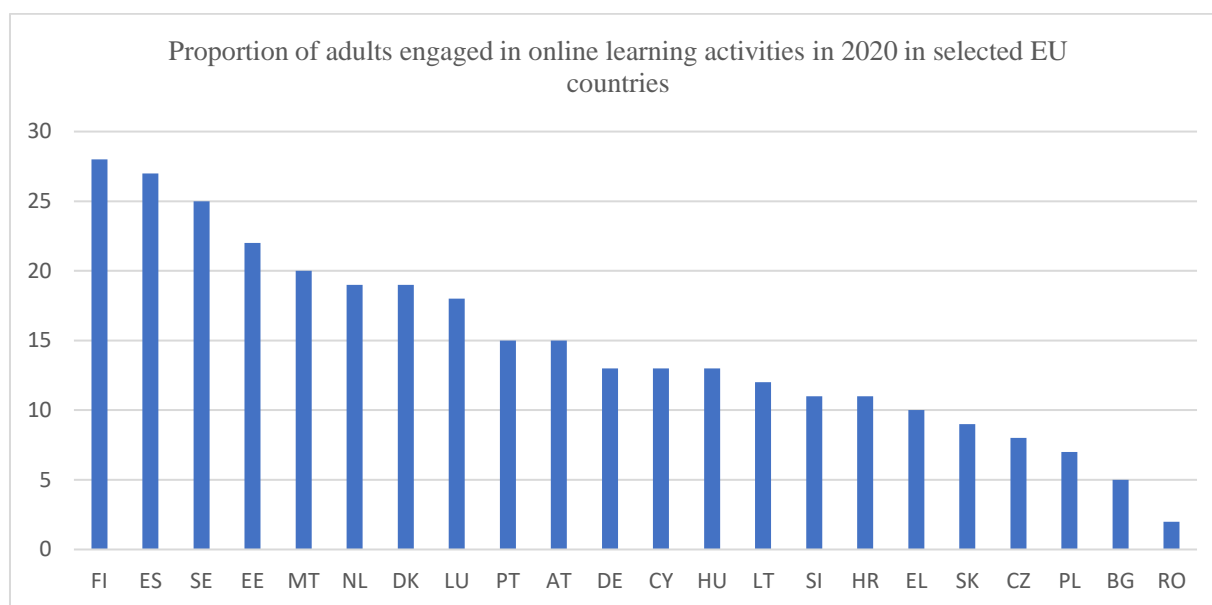
⁽⁶⁾ While the survey was carried out in 2020 in both these countries and hence relevant data were collected, at the time of writing this report there was no information on the corresponding survey and reference periods. It was therefore impossible to establish whether or not the data therein do capture the effect of Covid-19.

⁽⁷⁾ It is also important to note that, for the selected countries, the reference period does not always coincide with the lockdown. As reported by Plümpner and Neumayer (2021), the length of the lockdown did vary across countries.

3 Results

Figure 1 shows participation rate in online adult learning in 2020 in the selected EU Member States. Northern European countries are characterised by a higher proportion of adults engaged in online learning activities than Eastern European countries. This is likely to reflect country differences in both adult learning culture and computer and internet access rates. The incidence of online adult learning is also quite high in Spain (27 percent), Malta (20 percent) and Portugal (15 percent). Participation rate is found to vary significantly across countries. It ranges from 28 percent in Finland to 2 percent in Romania.

Figure 1: Incidence of online learning among adults



Source: Eurostat, Community survey on ICT usage in households and by individuals.

Notes: the values shown in the chart refer to participation in online learning over the reference period of 3 months.

As shown in Figure 2, in the large majority of EU countries the Covid-19 pandemic is associated with a considerable increase in online learning by adults ⁽⁸⁾. In 17 out of the 22 EU Member States considered in this study, participation rate in online adult learning increased significantly more between 2019 and 2020 compared to the annual average observed between 2017 and 2019 ⁽⁹⁾. This rise appears to be especially pronounced (i.e., 100 percent or more) in Cyprus, Portugal, Bulgaria, Hungary and Lithuania ⁽¹⁰⁾. Some of these results are in line with the evidence presented in a recent report by the European Commission (2020c) about the state of adult learning throughout the Covid-19 crisis. For instance, in Portugal training providers were able to make a quick

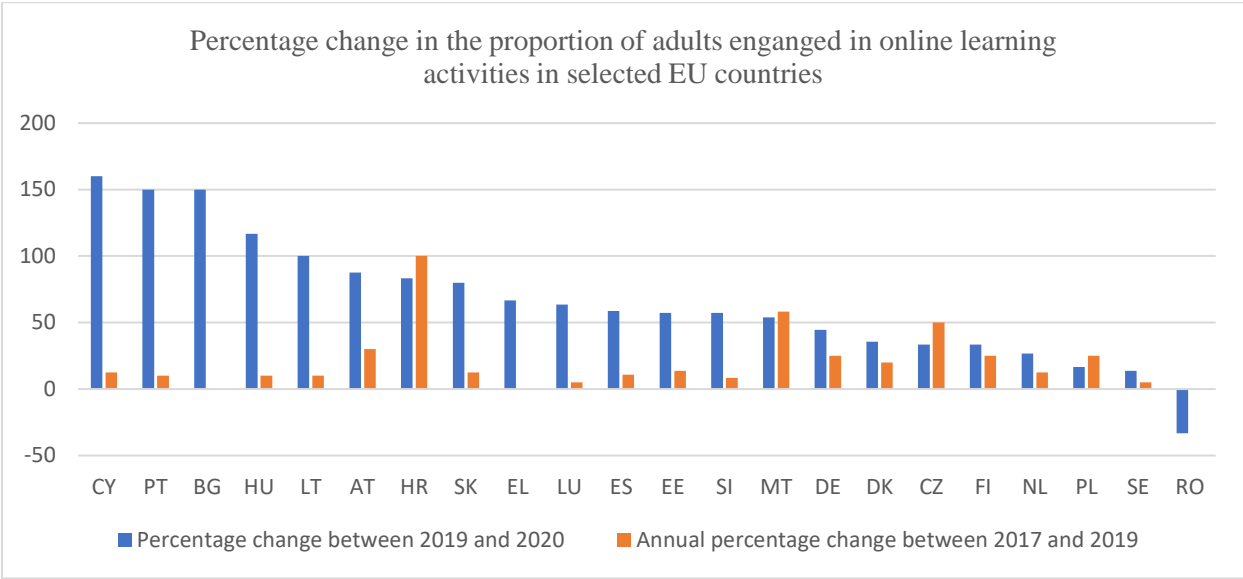
⁽⁸⁾ In general, countries participating in the 2020 edition of the Survey used mixed-mode data collection, with a combination of telephone interviews, web surveys or mail surveys. In some countries (e.g., Bulgaria, Czechia, Hungary, Lithuania, Romania, and Slovakia), though, face-to-face interviews were used as well. Note, however, that the face-to-face interviews were conducted after the quarantine ended, that is, from late May 2020 on. In Belgium, Croatia, Cyprus, Lithuania, Malta, Poland, Romania, Slovenia, Slovakia, and Sweden, the outbreak of the Covid-19 pandemic resulted in abandoning face-to-face interviews entirely. That is, in comparison with earlier editions of the survey, face-to-face interviews were replaced with either telephone interviews or web-based surveys in these countries due to the Covid-19-related restrictions. In the remaining countries, however, the pandemic had either no or only little (e.g., postponing the fieldwork to a period after the quarantine) effect on the survey design and implementation. On the basis of the information provided by the participating countries alone (see <https://circabc.europa.eu/faces/jsp/extension/wai/navigation/container.jsp>), it is difficult to assess how changes, if any, in the survey design and implementation affected the overall participation in the survey. Specifically, it is difficult to conclude if the changes could have resulted in over-sampling of more digitalised respondents. It is important to keep in mind, however, that countries which replaced face-to-face interviews in their 2020 surveys replaced them with telephone interviews or web-based surveys or some combination of both. In other words, it wasn't only web-based survey that was used to replace face-to-face interviews, which, perhaps, alleviates the concern that the changes in the data collection mode introduced in 2020 in response to the Covid-19 restrictions could have resulted in elevating the participation rates in adult online learning.

⁽⁹⁾ At EU level, the online share of adult learning increased from 8 percent in 2019 to 13 percent in 2020, after having grown by only 1 pp from 2017.

⁽¹⁰⁾ In supplementary analysis (available upon request by authors), we examine the correlation between internet access level and participation rate in online adult learning across the selected countries in 2020. The intuition behind this exercise is that the sudden shift towards online learning caused by Covid-19 is easier in countries with higher internet access levels. The result indicates that the correlation coefficient between the two aforementioned variables is around 0.65.

transition to working online with adults. In Bulgaria, the VET system adapted relatively well to the new circumstances imposed by the pandemic, especially as regard adults.

Figure 2: Effect of Covid-19 on the incidence of online learning among adults

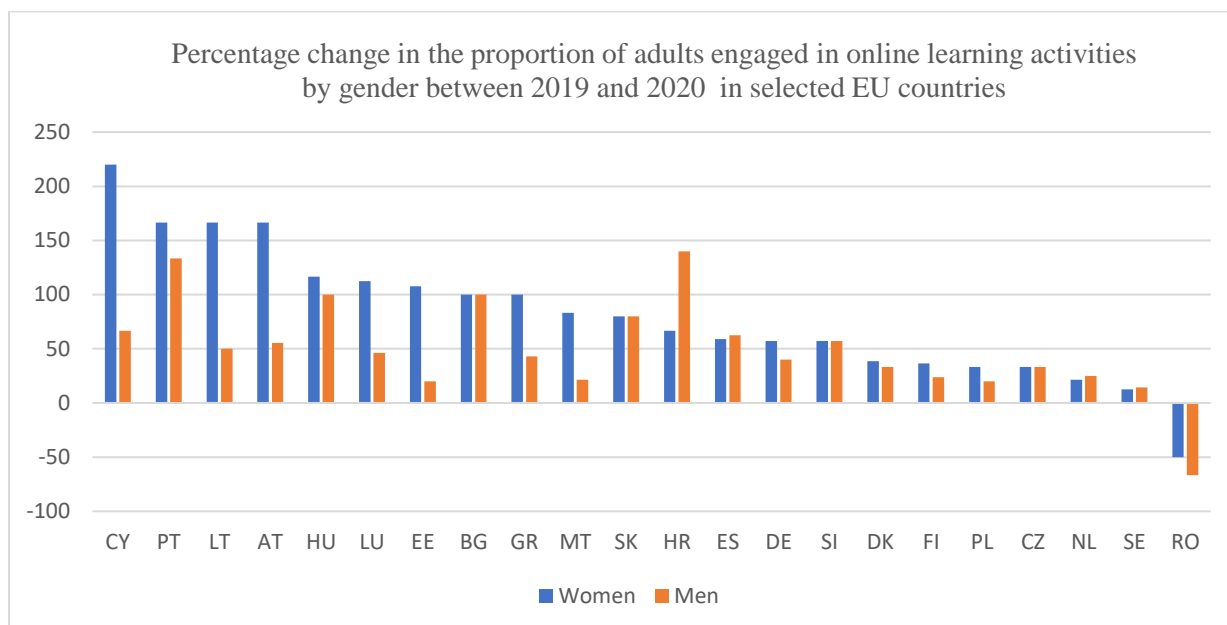


Source: Eurostat, Community survey on ICT usage in households and by individuals

Notes: The blue bar is computed based on the following expression: $\left(\frac{P_{2020}-P_{2019}}{P_{2019}}\right) * 100$ where P_{2020} is the proportion of adults engaged in online learning activities in 2020 whereas P_{2019} is the corresponding value in 2019. The orange bar is computed based on the following expression: $\left[\left(\frac{P_{2019}-P_{2017}}{P_{2017}}\right) / 2\right] * 100$ where P_{2017} is the proportion of adults engaged in online learning activities in 2017.

The considerable increase in online adult learning observed in most EU countries during Covid-19 is consistent with the surge in enrolments across many e-learning platforms all over the world since March 2020. FutureLearn, the UK’s largest online course platform, reports that more than a million people have signed up during the early phase of Covid-19 (Field, 2020). Online course marketplaces such as Udemy have experienced more than 400 percent growth in student numbers between March and December 2020 (Cordiner, 2020). Users of Coursera, an online platform offering MOOCs, increased by 10 million from mid-March to mid-May 2020, seven times the pace of new sign-ups in the previous year. Enrolments at edX and Udacity, two other well-known e-learning platforms, have also registered a similar increase (Lohr, 2020). There has also been an increase in interest in Google’s online certificate programs and LinkedIn Learning, which is another online education provider, has seen their number of users soar (Hess, 2021). In Canada, France, Italy, the UK and the US, simple keyword searches for expressions such as “online learning”, “e-learning” and “Massive Online Open Courses” increased up to four times between the end of March and the beginning of April 2020.

Figure 3: Effect of Covid-19 on the incidence of online adult learning by gender



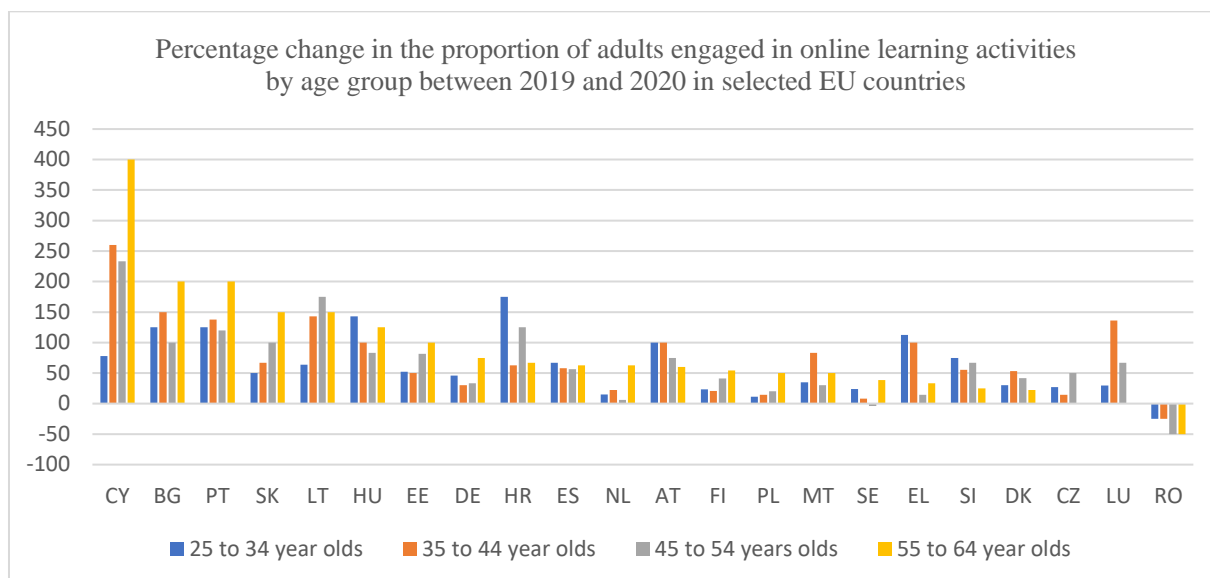
Source: Eurostat, Community survey on ICT usage in households and by individuals

Next, we examine whether the effect of Covid-19 on participation in online adult learning varied by gender, age group and educational level. Figure 3 shows that the Covid-19 crisis has led to an increase in online learning especially among women. Between 2019 and 2020, in 14 out of the 22 EU Member States here considered, the participation rate in online adult learning grew faster (or decreased at a lower rate in the case of Romania) among women than men. Two possible reasons can be put forward in an attempt to explain this result. First, given that the Covid-19 outbreak had a detrimental effect especially on women's labour market situation, this is likely to have encouraged them to seek further training and skill development. As for instance noted by Blundell et al. (2020) in the UK, female workers tend to be overrepresented in sectors that have been shut-down as a result of Covid-19. Bassoli et al. (2021) observe that, while the 2008 financial crisis has hit especially male-dominated sectors, Covid-19 has had a negative impact particularly on industries with higher prevalence of women. Additionally, there is evidence showing that the pandemic forced many women to leave their job in order to take up the role of caregivers to children and/or elderly relatives (Andrew et al., 2020). Blaskó et al. (2020) suggest that Covid-19 is likely to lead to an increased caregiving burden especially among Eastern and Southern European women. Second, teachers are likely to be responsible for a substantial part of the increase in online adult learning observed in the first stages of the Covid-19 crisis. There is ample evidence ⁽¹¹⁾ showing that before the pandemic a high proportion of teachers had no or little digital skills. In this context, it is important to note that women tend to be over-represented in the teaching profession, particularly at early childhood, primary and secondary education (Tani, 2019).

The results of a recent American survey, "The Public Viewpoint: COVID-19 Work and Education", suggest that the pandemic could have especially increased women's propensity to take online courses (McKenzie, 2020). A higher proportion of women than men said that they would prefer to attend a fully online education program (48 percent versus 33 percent).

⁽¹¹⁾ See results of a School Education Gateway survey that was conducted between 9 April and 10 May 2020 (<https://www.schooleducationgateway.eu/en/pub/viewpoints/surveys/survey-on-online-teaching.htm>)

Figure 4: Effect of Covid-19 on the incidence of online adult learning by age group



Source: Eurostat, Community survey on ICT usage in households and by individuals

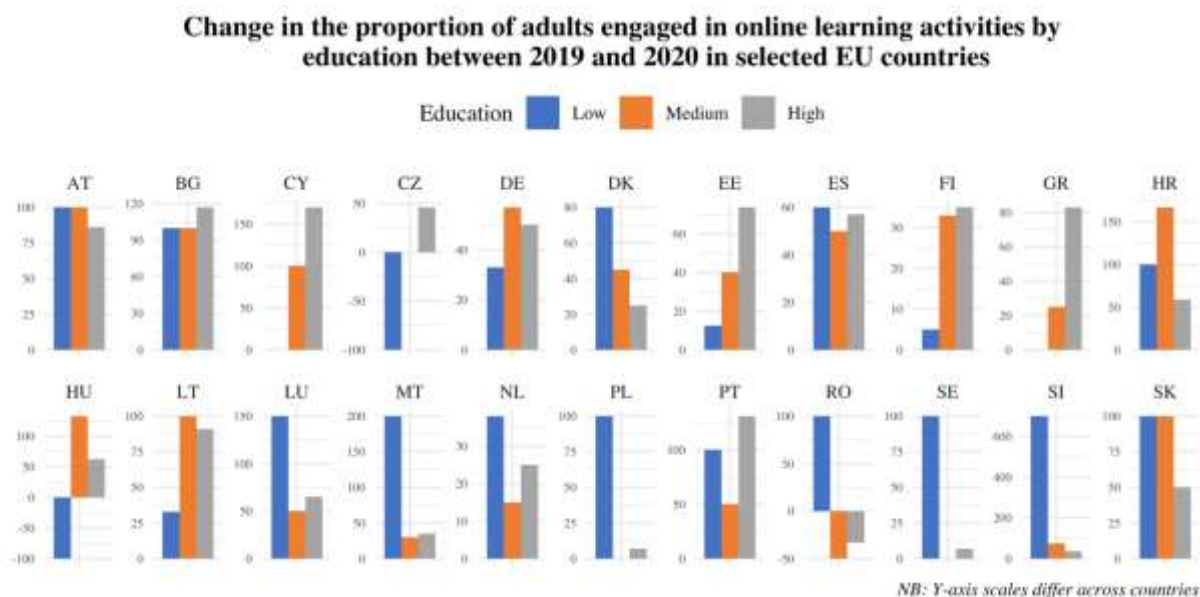
Figure 4 indicates that the Covid-19 outbreak has resulted in an increase in online learning especially among adults relatively close to the retirement age. More specifically, in around half of the EU countries under examination (10 out of 22), 55 to 64 year olds is the age group that experienced the highest increase in participation in online learning between 2019 and 2020. One possible reason for this outcome is that the lockdown has encouraged this group of individuals, who are traditionally less familiar with digital technologies (compared to those aged 25 to 54), to experiment with online learning, taking advantage of the fact that during this period many virtual education and training programmes have become available. As the consequences of digital exclusion have been particularly pronounced during the pandemic ⁽¹²⁾, Covid-19 could have acted as a trigger especially for such age group. Additionally, health hazards posed by the pandemic could have contributed to this situation. Given that older workers faced the greatest health risks, where possible they were particularly encouraged to do teleworking. This meant that many of them had to develop and upgrade their digital skills (Kakulla, 2021). It may also be important to note that individuals aged 55 to 64 are more likely to have grown up children that during the early stage of the pandemic perhaps required less attention and care compared to infants and toddlers. This could have given them more time to undertake online learning at home.

Another related explanation is that the pandemic could have made especially older workers concerned about up-skilling and hence drove them to take online classes. They could have been particularly scared to lose their job during Covid-19 as they are aware that, compared to their younger counterparts, it would generally take them a longer period of time to find a new employment (Phillips, 2020).

Finally, it is important to note that as before the Covid-19 pandemic participation in online adult learning among 55-64 year olds was low in absolute value and also compared to younger individuals, even a small percentage point increase can mean a substantial percentage change over time. This argument is supported by the evidence presented in Annex 2. While, as shown in Figure 4, Cyprus and Bulgaria display the biggest percentage increase in participation in online adult learning among individuals close to the retirement age in 2020, as depicted in Annex 2, the incidence for this group of people was very low in 2019 in both these countries.

⁽¹²⁾ Covid-19 has made digital skills and access even more necessary than before in almost every aspect of life, from booking an appointment with the doctor to buying food to attending school.

Figure 5: Effect of Covid-19 on the incidence of online adult learning by education



Source: Survey on ICT usage in households and by individuals

Notes: Where no bar is shown, it means that the corresponding percentage change is zero.

Evidence from Figure 5 suggests that the pandemic yielded an increase in online learning especially among less-educated adults. Between 2019 and 2020 in several EU countries (i.e., Slovenia, Malta, Luxembourg, Sweden, Poland, Romania, Denmark, Spain and Netherlands) adults with low formal education showed a higher increase in participation in online learning than those with high and medium formal education⁽¹³⁾. Since the pandemic has disproportionately affected people with lower educational levels (Darvas, 2021; Benzeval et al., 2020), this group of individuals might have particularly felt the need to update their skills and retrain for new jobs. Additionally, Covid-19 restrictive measures could have helped less-skilled people overcome two traditional barriers to participation in adult learning: lack of time and lack of funding. While the lockdown forced most people to stay at home, it was accompanied by increased availability of many free or low-cost online training programmes. Finally, as outlined earlier for older adults, one should observe also here that in some countries the very low participation rate in online adult learning among less-educated individuals in the pre-Covid-19 helps to explain the sizeable percentage increase experienced by them in 2020. For instance, as shown in Annex 3, during 2019 in Slovenia, Poland and Romania participation was very poor among people with low formal education.

4 Conclusions

While there are concerns and some evidence suggesting that the pandemic led to a decline in adult learning, this work has shown that in most EU countries Covid-19 saw an increase in the proportion of adults taking online courses. In Member States such as Cyprus, Portugal, Bulgaria, Hungary and Lithuania, such increase appears to be especially remarkable. This result confirms the idea that Covid-19 has accelerated the digital transformation including exposure to online learning activities. This process has been supported by the increased availability and adoption of electronic devices.

Our analysis has also found that the effect of the pandemic on online adult learning differs across gender, age and education. Participation in online courses particularly increased among women, individuals aged 55 to 64, and less-educated adults. The effects of Covid-19 on the labour market may well contribute to explain these findings. As women and less-educated individuals have been especially hit hard, they are more likely to have sought training and skill development. Despite existing studies suggesting that the pandemic had a more negative effect on the labour market situation of young people than older adults (Adams-Prassl et al., 2020; Despard et al., 2020), it is still possible that the latter strongly felt the need to upgrade the skills and retrain. Covid-19 could have made older workers particularly concerned about losing their jobs given that they tend to

⁽¹³⁾ Following ISCED 2011, low formal education comprises level 0-2, medium formal education includes levels 3-4 and high formal education covers levels 5-8.

have lower employment opportunities than their younger counterparts. Additionally, while where possible older workers have been encouraged to work remotely given the greater health risks posed by the pandemic to them, some of them have probably needed to learn new skills to adapt to the technological demands typically associated with teleworking. Other explanations include the enhanced availability of free or subsidised online resources and educational programs, which are likely to have increased participation among individuals who are normally unable to afford to pay for learning costs (e.g., the less educated ones). Moreover, the flexibility associated with online learning could have been valued especially by women, many of whom had to suddenly take over childcare duties and home schooling in the face of nursery and school closures.

The results of this study would appear to suggest that Covid-19 could have acted in the direction of narrowing some gaps in participation to online learning among adults. For example, while older individuals are generally found to be less likely to engage in online education and training (Abedini et al., 2021), as reported above, the pandemic saw an increase in participation in online courses especially among this group of people. Similarly, the year 2020 has been characterised by a remarkable growth in the proportion of less educated people taking online courses whereas their participation in online learning activities tends to lag behind that of their more educated counterparts (Hansen and Reich, 2015).

What will be happening in the future? Will adults be increasingly relying on online learning also when the epidemiological emergency is over and in-person teaching can take place safely? It seems reasonable to argue that a shift in adult learning towards online activities is likely to continue also in the next years, though probably to a smaller extent over time compared to the sudden increase that has occurred during the pandemic. Results from the Open Public Consultation (OPC) launched by the European Commission between July and September 2020 would seem to confirm this. The purpose of such OPC was to gather the views and experiences of all citizens, institutions and organisations about the impact of Covid-19 on education and training, the related switch to distance and online learning and their vision for the future of digital education in Europe. The very large majority of respondents (i.e., 95 percent) said that they believe that the crisis and the temporary switch to distance and online teaching will have a long-term impact on education and training.

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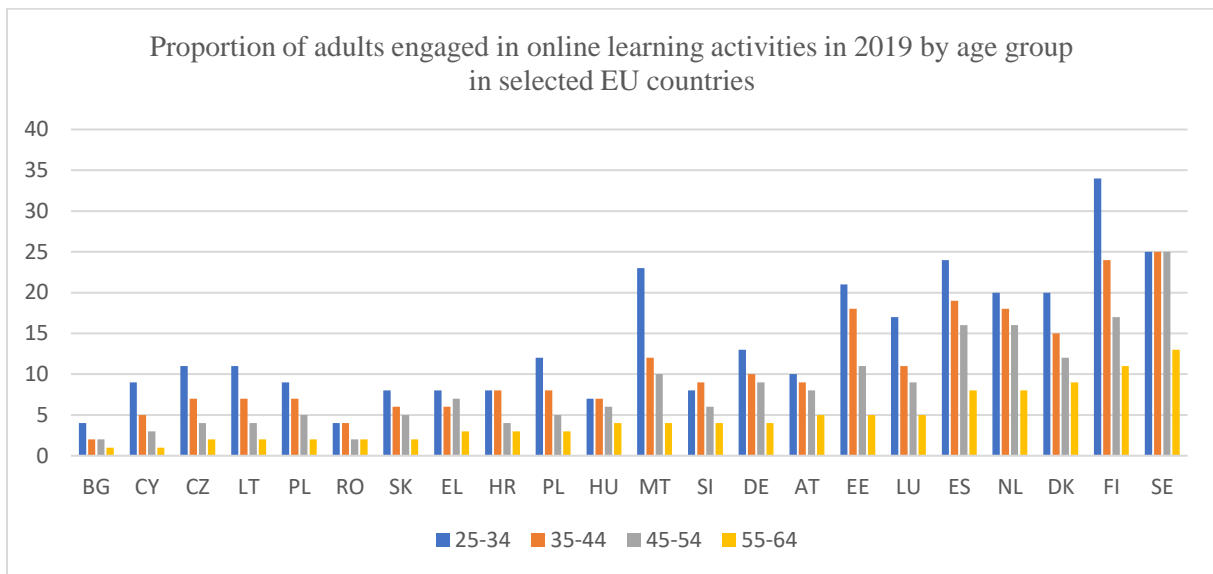
Annexes

Annex 1. Survey and reference periods of the selected EU countries

Country	Survey period	Reference period
Austria	April - June 2020	Last three months before the interview
Bulgaria	1 June - 24 July 2020	March-May 2020
Croatia	8 June - 24 July 2020	Last three months before the interview
Cyprus	2 April - 30 April 2020	First quarter 2020
Czech Republic	6 April - 14 August 2020	Last three months before the interview
Denmark	1 April - 31 May 2020	Last three months before the interview
Estonia	1 April - 30 June 2020	First quarter of 2020
Finland	20 March - 10 June 2020	Last three months before the interview
Germany	April - May 2020	Last three months before the interview
Greece	July - August 2020	First three months of 2020
Hungary	3 August - 18 October 2020	First quarter 2020
Lithuania	20 March - 2 August 2020	Last three months before the interview
Luxembourg	11 June - 28 July 2020	Last three months before the interview
Netherlands	27 March - 12 June 2020	Last three months before the interview
Malta	May - July 2020	Last three months before the interview
Poland	6 April - 29 May 2020	Last three months before the interview
Portugal	21 April - 31 August 2020	Last three months before the interview
Romania	25 May - 5 June 2020	Last three months before the interview
Slovakia	June - July 2020	First quarter 2020
Slovenia	2 March - 31 May 2020	First quarter 2020
Spain	2 March - 15 September 2020	last three months before the interview
Sweden	2 April - 8 June 2020	Last three months before the interview

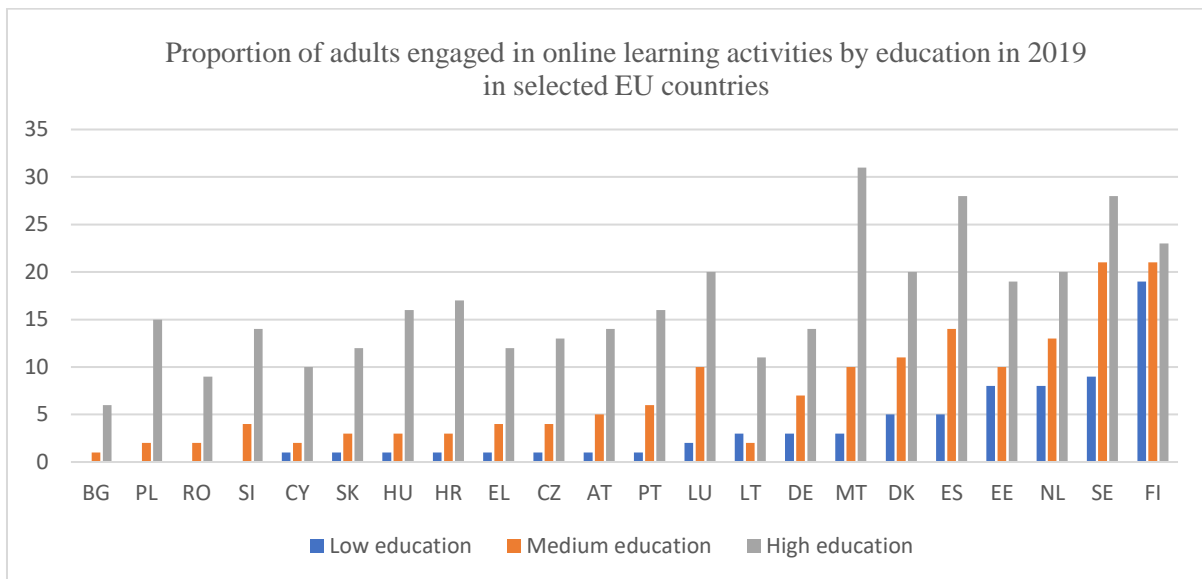
Eurostat, Survey on ICT usage in households and by individuals

Annex 2. The incidence of online adult learning by age group in pre-Covid-19



Source: Survey on ICT usage in households and by individuals

Annex 3. The incidence of online adult learning by education in pre-Covid-19



Source: Survey on ICT usage in households and by individuals

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doi:10.2760/886741

ISBN 978-92-76-45989-7